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ABSTRACT

A model for on-bus instruction during travel time from high schools to area vocational centers was developed, tested, revised, implemented, and evaluated. Two units of study adapted from existing material used for teaching occupational survival skills were included in the model. Audiotapes, handouts, worksheets, attitudes, and cognitive tests were used during the project. Students who were instructed on the bus became more positive in their attitudes toward riding the school bus. Teachers reported little or no change in students' concerns about employability or job survival skills. Following the 13-page abstract are extensive appendixes. Two project progress reports describe the developing and piloting of units for study on the bus in phase 1 and developing of units, instruments, and procedures for phase 2. Four manuscripts submitted for publication describe the project that involved providing students with headsets and lapboards on the bus, wiring the bus with jacks to accommodate the headsets, distributing handouts and worksheets, depositing duplicate materials in the school library, and evaluating student attitudes. Other appendixes include a summation of evaluation data and letters of interest. (YLB)

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IL 813109

Final Report

Project Title: Working at Saving Time in Education: An Innovative Vocational Education Delivery System

Agreement No.: R-31-13-X-112-472

Name of Agency: Northern Illinois University, Department of Industry and Technology

Agency Address: 205 Still Gym
DeKalb, Illinois 60115

Date: 5/1/82

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Final Report FY 1982-83: Working at Saving Time in Education: An Innovative Vocational Education Delivery System

Project Staff: Jule Dee Scarborough
Joseph R. Ellis

Agency: Department of Industry and Technology
Northern Illinois University
DeKalb, Illinois 60115

Sponsored by: Illinois State Board of Education

Department of Adult Vocational and Technical Education

Date: June, 1983

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A. Final Report Abstract

Title of Project: Working at Saving Time in Education: An Innovative Delivery System for Vocational Education

Funding Agreement Number: R-31-13-X-1102-472

Principal Investigator: Jule Dee Scarborough

Institution: Northern Illinois University

Location: DeKalb, Illinois 60115

Time Period Covered: 1 July 1982 - 30 June 1983

Major Accomplishments of the Project

1) Developed, piloted, revised, implemented and evaluated model for on-bus instruction during travel time from high schools to area vocational centers.

2) The model includes two units adapted from Pollock's A Curriculum Guide for Pre-Employment Skills, a DAVTE funded project, 1978.

3) This project created interest in making use of on-bus travel time to area vocational centers and more specifically interest in the outcomes of this project as well as possible participation.

Potential Impact on Vocational Education

The project has demonstrated that vocational education learning experiences can be delivered efficiently and effectively to students while riding school buses. However, the impact could be considerably broadened with the development of materials directly related to the area vocational center's technical areas.

Product Delivered

Two units of study including transcripts of audio-tapes used during on-bus instruction, as well as copies of all hand-outs, worksheets, and attitude and cognitive tests. Also delivered were quarterly and a final report.

B. Expenditure of Funds

The original funding agreement was July 1, 1982 through June 30, 1983. A copy of the final budget is attached. Final reimbursement will be requested by Northern Illinois University's Fiscal Officer.

C. Paid Participants

Jule Dee Scarborough, Director
Department of Industry and Technology
Northern Illinois University
(1 month)
(See Appendix A for Vita)

Gina Wegscheid, secretary
Brenda Elliott, secretary
Annette Molitor, secretary

Joseph R. Ellis, Research Facilitator/Evaluator
Department of Learning, Development and Special Education
Northern Illinois University
(1 month)
(See Appendix A for Vita)

William Vohaska, Graduate Assistant
Department of Industry and Technology
Northern Illinois University
(9 months)

Budget

	Budget Request from State Board	Local Contribution	Total
I. Salaries			
1. Project Director Jule Scarborough 1 month @ $2280	$ 2280	0	$ 2280
2. Project Facilitator/ Evaluator Joe Ellis 1 month @ $3855	3855	0	3855
Fringe benefits @ 16% of 6135	982	0	982
Graduate Assistant 9 Months @ 400/month	3600	0	3600
Clerical Assistant, 100 hours @ $4.58/hour	458	0	485
Subtotal	$11175	0	$11175
II. Contractual Services			
1. Consultant services 9 days @ 100/day	$ 900	0	$ 900
2. Consultant travel, lodging and per diem at prevailing Illinois State Board of Education rates			
3. Printing and Duplicating	130	0	130
4. Telephone	30	0	30
5. Postage	30	0	30
6. Subcontract to Mid-Valley AVC for expenses related to project	1848	0	1848
Subtotal	$ 2938	0	$ 2938

III.	Materials and Supplies			
	1. Paper, art supplies, pencils	$ 100	0	$ 100
	Subtotal	$ 100	0	$ 100
IV.	Travel			
	Project staff travel lodging and per diem at prevailing Illinois State Board of Education Rates			
	Auto (2500 miles @ .20/mile)	$ 500	0	$ 500
	Lodging (2 nights @ 27/night)	54	0	54
	Per diem (2 days @ 17/day)	34	0	34
	Subtotal	$ 588	0	$ 588
	Total Direct Costs	$14801	0	$14801
V.	Other Related Expenses			
	Indirect costs	$ 1184	0	$ 1184
	TOTAL	$15985	0	$15985

D. Resource Listing

1. Material Resources (Not applicable)

2. Human Resources

Harvey Bos, Director
Mid-Valley Area Vocational Center
Kaneville, IL

Tom Fegley, Principal
Central High School
Burlington, IL

Mike Switzer
Assistant Principal
Central High School
Burlington, IL

Bob Dunaway
Transportation Director
Central High School
Burlington, IL

School Bus Driver
Central High School
Burlington, IL

3. Equipment

115 Cassette Tapes (taped copies, reusable)

31 Head Sets

26 Cassette Players

1 Car Tapedeck

1 Car Power Booster

30 Jacks

26 sets of batteries (used)

E. Major Accomplishments and Significant Findings of the Project

1. Objectives, Activities, Judgments, and Impact

a. Objectives

1) Near the end of the project, those associated with the operation of the project will provide feedback on the instructional package model developed and tested with the students riding the school bus.

2) Near the ninth month of the project, using an attitude measure to be developed by the project's staff, 75% of the students participating in the project will respond by indicating an increase in the educational value of the time that they spend on the school bus in transit to and from the are vocational center.

3) Near the tenth month of the project, using an observational guide rating scale to be developed by the project's staff, vocational teachers at the area vocational center who teach students who have participated in the project will indicate if they observed their students to have exhibited in their behavior increased concern for and competence in occupational survival skills/employability skills.

4) At the beginning and conclusion of each of the units to be taught as part of the project, participating students using a test of unit achievement will score 50% higher on the posttest than they did on the pre-test.

b. Activities

1) For objective #1:

Fall 1982 - a revised model was piloted for three weeks of on-bus instruction.

Spring 1983 - model was implemented during two weeks of on-bus instruction.

2) For objective #2:

At the beginning and end of the pilot and implementation periods of on-bus instruction, an attitude measure was used to determine opinions about instruction during the on-bus transit time for both groups, experimental (instructed on-bus) and control.

3) For objective #3:

The teachers were surveyed by a questionnaire and their responses indicated the judgment expressed herein.

4) For objective #4:

The pre and posttest showed significant (.001) results for one of the two units taught. However, no significance was found

for the second unit during implementation.

c. Judgments

1) For objective #1:

A model for on-bus instruction was developed and tested. This model is available, however, the nature of the content of the model requires that the content be expanded to place it in complete context and to make it more comprehensible for students.

2) For objective #2:

Attitudes for student who were instructed on the bus differed significantly from those not taught during bus time. The group which was instructed on bus became more positive in their attitude towards riding the school bus. Therefore, it was concluded that the objective was achieved.

3) For objective #3:

The teachers reported little or no change in the concerns about employability or job survival skills expressed by the students who were instructed on the bus. When compared to students of previous years as well as compared to students who received no on-bus instruction. Therefore, this objective was not achieved.

4) For objective #4:

This objective was only partially achieved in that one of the two implemented units showed significant gains.

d. Impact

While it is too early to assess direct impact, there has been considerable interest in continued and expanded participation by public school personnel and area vocational center personnel (see Appendix E).

2. Products Abstract

(See Appendix B)

3. Major Dissemination Activities

Dissemination activities fell into two categories: Dissemination activities conducted on the NIU campus, and dissemination activities off campus. The purpose for dissemination was to create awareness and deliver general information about this innovation delivery system for vocational education. The target audience for dissemination was vocational education students, staff, and administrators.

Dissemination on campus was accomplished through meetings.

- The project director described the project to the faculty within the Department of Industry and Technology during the semester meeting of 1982.
- The project director and project facilitator/evaluator met with Tom Erekson, Research Coordinator for

Vocational & Technical and Career Education and the following to create an awareness of the Project's goals and objectives.

- Proposals for presentation have been submitted to:

  a) Illinois Vocational Association (pending)

  b) The Illinois Association for Pupil Transportation (accepted, see Appendix F)

Harvey Bos, Director
Mid-Valley Vocational Center

John Vicha, Principal
Batavia High School
Batavia, IL

Donald G. Marcotte
Geneva High School
Geneva, IL

Dr. Paul Leman
St. Charles High School
St. Charles, IL

Tom Fegley
Central High School
Burlington, IL

Off campus dissemination was accomplished through letters, progress reports and journal articles.

- The project director wrote a letter to every area vocational director in the state of Illinois announcing and describing the project.
- The project director and facilitator/evaluator wrote six manuscripts and submitted them to the following journals for publication.

"A Report of a Pilot Study Concerning a New Approach for Providing Learning Experiences to Industrial Education Students" (submitted to Man/Society/Technology for the September, 1983 issue).

"A New Approach to Handling Waste in Vocational Education" (submitted to Voc/Ed).

"The School Bus as a Vehicle for Delivering Vocational Education" (submitted to Industrial Education for the May or September, 1983 issue).

"Time on the School Buses: An Innovative Approach to Delivering Vocational Education Learning Experiences" (published in the Illinois Industrial Education Journal, Fall, 1982).

"How to Make Better Use of Student Time" (submitted to Illinois School Board Journal).

- The project director mailed quarterly project reports not only to contract officers, but to all the area vocational center directors in the state of Illinois. (See Appendix C)

4. Staff Development

Not Applicable.

5. Publicity

See Appendix C for the letter to Area Vocational Center directors announcing the Project, the quarterly progress reports and the manuscripts submitted for journal articles.

F. Problems

There were several problems encountered mostly during the pilot phase of the project. They are described below:

Problem	Corrective Action Taken
1. Equipment handling (tape recorders, headsets, tapes, written materials).	-wired the bus to eliminate individual players and tapes.
2. using written materials on bus.	-made lap boards to accommodate written materials.
3. getting quality tapes without funds for sound room.	-through The Department of Industry and Technology, acquired use of sound room for taping on NIU campus.
4. getting enough volume after wiring the bus.	-power booster was used on bus.
5. not enough funds for consultants to develop taped materials.	-project director and project facilitator/evaluator worked overtime.

G. Summation of Evaluation Data Collected
(See Appendix D)

H. Statement of Impact

While it is too early to assess the project's direct impact, there has been considerable interest in the project by school administrators and area vocational center directors for not only instruction in vocational education, but also instruction in general education and sports as well. It should be noted, however, that the driver of the bus on which students were taught reported that an almost impossible discipline situation improved to a situation of no discipline problems at all while this project was on-going. (See Appendix E)

I. Conclusions and Recommendations

The major conclusion drawn from the project's first year of funding was that such an innovative delivery system is viable and possible. It is recommended, however, that the project continue,

and that (1) in the year 1983-84 its major purpose be that of expanding to technical content which is directly related to the area vocational center courses offered, (2) on-bus presentation be carefully related to in-class content, and (3) that the project create a stronger research base by extending the period of on-bus instruction in the spring of 1984. (See Continuation Proposal F41983-84)

Appendix A

Vita

VITA

Jule Dee Scarborough
Department of Industry and Technology
205 Still Gym
Northern Illinois University
DeKalb, Illinois 60115
Phone: (815) 753-0516/1349

Educational Experience:

B.S., Industrial Arts, Appalachian State University, Boone, North Carolina, 1971-1975.

M.A.E., Industrial Education, Ball State University, Muncie, Indiana, 1976-1977.

Ph.D., Industrial Technology, The Ohio State University, Columbus, Ohio, 1979-1981.

Professional Experience:

Industrial Arts Teacher, Fort Bragg Dependents Schools, Fort Bragg, North Carolina, 1975-1976.

Graduate Teaching Assistant, Department of Industrial Education, Ball State University, Muncie, Indiana, 1976-1977.

Graduate Research Associate, The National Center for Research and Vocational Education, The Ohio State University, Columbus, Ohio, 1977-1978.

Industrial Arts Teacher, Winston Salem Public Schools, Winston Salem, North Carolina, 1978-1979.

Graduate Teaching Associate, Department of Industrial Technology, The Ohio State University, Columbus, Ohio, 1979-1981.

Assistant Professor, Department of Industry and Technology, Northern Illinois University, DeKalb, Illinois, 1981-present.

Related Experience:

Summer contract, High-tech training and experience in manufacturing in exchange for consultation on high-tech training manuals/methods, General Motors Assembly Plant, Wentzville, Missouri, Summer, 1983.

A. Publications
(* indicates refereed journal)

Scarborough, J. D., Status study of industrial arts in Ohio, 1980. Tho Ohio Industrial Arts Association Newsletter, Fall, 1981.

*Scarborough, J.D. and Ellis, J.R., Time on the school buses: an innovative approach to delivering vocational education learning experiences. ILLINOIS INDUSTRIAL EDUCATOR, Fall, 1982.

*Scarborough, J. D., Comprehending technical discourse: the effects of text organization, visuals, and performance. MANS/SOCIETY/TECHNOLOGY, November, 1982.

Scarborough, J.D. and Blankenbaker, K.E., Technological literacy: the language dimension. American Industrial Arts Association, AIAA Monograph Series, April, 1983.

*Scarborough, J.D., A unique seminar. ILLINOIS INDUSTRIAL EDUCATOR, Spring, 1983.

*Scarborough, J.D., Technology education--what is happening now. THRESHOLDS, Spring, 1983.

*Scarborough, J.D. and Ellis, J.R., A New Type of Experience for Industrial Education Students. MANS/ SOCIETY/-SOCIETY/TECHNOLOGY, (being reviewed).

Scarborough, J.D., The school bus as a vehicle for delivering vocational education. INDUSTRIAL EDUCATION, (being reviewed).

*Scarborough, J. D. and Ellis, J.R., The effects of text organization, visuals, and activity on comprehension of technical textual discourse. JOURNAL OF INDUSTRIAL TEACHER EDUCATION, (article being reviewed at present).

Scarborough, J.D. and Ellis, J.R., How to make better use of student time. ILLINOIS SCHOOL BOARD JOURNAL, (being reviewed).

Scarborough, J. D. and Erekson, T. MANUFACTURING SYSTEMS: APPLICATIONS OF NEW AND EMERGING TECHNOLOGIES, Book proposal to McKnight Publishing Co., Bloomington, IL (presently being reviewed).

Scarborough, J.D. and Ellis, J.R., Developing alternative and efficient systems for delivering vocational education learning experiences to high school student. JOURNAL OF INDUSTRIAL TEACHER EDUCATION, (being re-

viewed).

B. Presentations

"Technical Vocabulary, Concepts and Discourse Organization", American Industrial Arts Association National Convention, Pittsburgh, Pennsylvania, March, 1981.

"Information Processing and Technical Information", Northern Illinois Roundtable, Northern Illinois University, DeKalb, IL, October, 1981.

"Living in Space", DeKalb Teachers Institute Day, DeKalb High School, DeKalb, Illinois, October, 1981.

"Living in Space", Futures Workshop for the Gifted and Talented, Dundee Junior High School Students, Hampshire, Illinois, December, 1981.

"The Future and Living in Space", Workshop for Gifted Dundee High School Students, Hampshire, Illinois, March, 1982.

"Comprehension of Technical Information and Practical Application of the Information", American Industrial Arts Association National Convention, Hartford, Connecticut, March, 1982.

"Information Processing and Comprehending Technical Concepts", American Vocational Association, 1982 national convention, St. Louis, Missouri.

"The Illinois Plan for Industrial Education", American Vocational Association, 1982 national convention, St. Louis, Missouri.

"The Illinois Plan for Industrial Education", Teacher Institute Day, Kane County, Aurora, Illinois, February, 1983.

"Manufacturing and the Enterprise", Illinois Industrial Education Association Mini Workshop, Northern Illinois University, February, 1983.

"Technological Literacy: The Language Dimension", American Industrial Arts Association National Convention, Milwaukee, Wisconsin, April, 1983.

"The Illinois Plan for Industrial Education at the Junior High Level", The American Industrial Arts Association National Convention, Milwaukee, Wisonsin, April, 1983.

"Quality Features Standards for Illinois Industrial

Educators", Illinois Vocational Association State Convention, Springfield, Illinois, August, 1983.

"The Illinois Plan for Junior High Industrial Education", Illinois Vocational Association State Convention, Springfield, Illinois, August, 1983.

C. Other Professional Activities

Epsilon Pi Tau Co-Trustee, Fall, 1981-present.

Illinois Vocational Association Conference, February, 1981-August, 1983.

National Association of County Officials Tour of China, Thailand and Taiwan. This included visits with political officials and an industrial tour as well, Summer, 1981.

Illinois Joint Staff, Conferences, October, 1981, November, 1981, October, 1982, November, 1982, February, 1983, and March, 1983.

Technology Symposium III, Ball State University, October, 1981.

Technology Symposium IV, Illinois State University, Normal, Illinois, October, 1982.

Mississippi Valley Industrial Teacher Education Conference, November, 1981, Chicago, Illinois, November, 1982, St. Louis, Missouri.

Division of Adult Vocational Technical Education (DAVTE) of The Illinois State Board of Education Evaluation Team for Port Byron, Riverdale, Illinois, January, 1982.

Judge, Northern Illinois Industrial Education Exhibit, April, 1982.

Illinois/Indiana Conferencefor Industrial Education, Illinois State University, Normal, Illinois, October, 1982.

Robot Seminar, Illinois State University, Normal, Illinois, October, 1982.

American Vocational Association National Convention, St. Louis, Missouri, December 3-6, 1982.

High Technology Workshop, "Robotics", St. Louis, Missouri, December 2, 1982.

Robot Training Workshop, Triton College, February 3-4, 1983.

American Industrial Arts Association National Convention, Milwaukee, Wisconsin, April, 1983.

"Student Teacher Cooperating Teacher Workshop", Fall 1981, Spring 1982, Fall 1982, Spring, 1983.

"Student Teacher Workshop", Northern Illinois Taft Field Campus, Fall 1981, Spring 1982, Fall 1982, Spring 1983.

D. Committees

American Industrial Arts Association Curriculum Committee, 1983-1984.

American Council of Industrial Arts Teacher Educators Research Committee, 1981-present.

Illinois State Industrial Education Quality Features Standards Committee, 1981-present.

Illinois State Industrial Education Quality Features Field-testing Subcommittee, Spring Semester, 1983.

Advisory Council for Teacher Education, College of Education, 1982 - present.

Electrical Engineering Accreditation Committee, Chair Department of Industry and Technology, Northern Illinois University, Fall, 1982.

Personnel Review Committee, Department of Industry and Technology, Northern Illinois University, 1982.

DeKalb High School Industrial Education Advisory Committee, 1982 - present.

Technological Literacy Committee, Industrial Arts Division American Vocational Association, Fall, 1982 - present.

Technological Literacy Committee, Northern Illinois Joint Staff, Fall, 1982 - present.

Technology Symposium VI Co-director, Fall, 1982-84.

E. Research, Grants and Funded Projects

Scarborough, J.D. <u>The effects of textual organization, visuals, and enactive performance on comprehension of technical textual discourse</u>. (Doctoral Dissertation,

The Ohio State University, 1981).

Team member, "Status Study of Industrial Arts in Ohio, 1980", funded by The Ohio Department of Education, The Ohio State University, Columbus, Ohio, 1981-1982.

Director, subcontract "Recruitment, Retention, and Retraining". Funded by Division of Adult, Vocational and Technical Education/Illinois State Board of Education, 1982-1983.
FY 81: $4,000.00

Director, "Working at Student Time-Saving in Education, An Innovative Vocational Education Delivery System", Grant from Department of Adult, Vocational and Technical Education/Illinois State Board of Education, 1982-1983.
FY 82: $16,000.00

Curriculum Consultant, "A State Guide for Industrial Education, K-Adult", Grant from Division of Adult, Vocational and Technical Education/Illinois State Board of Education, 1982-1983.
FY 82: $16,000.00

Summer Program Improvement Grant, June, 1983, Industrial Experience to update and improve the manufacturing aspect of Industrial Education at Northern Illinois University.

*Director, "Correlation Between Industry and Technology Classes and Accidents", Submitted to NIOSH, December, 1982 (presently being reviewed).

F. Professional Memberships and Honors

American Industrial Arts Association
American Vocational Association
Phi Delta Kappa
Epsilon Pi Tau
Illinois Industrial Education Association
American Council for Elementary School Industrial Arts
American Council of Industrial Arts Teacher Education
National Association of Industrial and Technical Teacher Educators
Order of Eastern Star
Talent Award, Appalachian State University
Academic Scholarship, Appalachian State University

G. Courses Taught at Northern Illinois University

IN&T 301 Teaching Problems in Industrial Education
IN&T 305 Concepts and Practices of Industry
IN&T 485 Student Teaching Supervision
IN&T 398W Independent Study in Woods or Production
IN&T 599A Graduate Independent Study - Special Problems
IN&T 698 Inservice Teacher Education - Production Systems

Vita

Personal: Name - Joseph R. Ellis
Born - April 13, 1927; Knoxville, Tennessee

Office: College of Education
Graham Hall 314
Northern Illinois University
DeKalb, Illinois 60015
815/753-0658

Education: Knoxville High School, Knoxville, Tennessee, 1946
B.S. (History-Political Science) University of Tennessee, 1950
M.S. (Educational Administration) University of Tennessee, 1951
M.S. (Educational Psychology) University of Tennessee, 1954
Ed.D. (Secondary Education-Educational Psychology) University of Texas, 1960)

Professional Experience:

Social Studies Teacher, Oak Ridge High School
Oak Ridge, Tennessee, 1951-56

Positions:

Assistant Professor Education and Psychology
Appalachian State Teachers College
Boone, North Carolina 1956-57

Lecturer (one-half time)
College of Education
University of Texas
Austin, Texas 1957-59

Associate Professor of Education
Indiana State University
Terre Haute, Indiana 1959-64

Professor of Education
Northern Illinois University
DeKalb, Illinois 1964-present

Coordinator, Educational Research and Services
College of Education
Northern Illinois University
DeKalb, Illinois 1968-80

Publications: Over fifty articles published.

A summary of the Texas Economic Education Council's conference on economic education. Texas Journal of Secondary Education, Winter, 1958, 11, 25-32.

School program: General instructional procedures. Review of Educational Research, February, 1960, 30, Chapter V.

Relationships between aspects of preparation and measures of performance of secondary teachers of the social studies. Journal of Educational Research, September, 1961, 55, 24-28.

New frontiers in an old no-man's land: The junior high school in Indiana. Teachers College Journal, January, 1962, 33, 93-95.

An editorial: Momentum and the junior high school movement. Teachers College Journal, November, 1962, 34, 43.

The junior high school curriculum: A general point of view. Teachers College Journal, November, 1962, 34, 55-56.

Conceived, organized and edited the Junior High School Newsletter, a publication of Indiana State University (1962-64).

Conceived, organized, and edited: Junior high school education (the entire issue including contributions from nine authorities). Teachers College Journal, December, 1962, 34.

Conceived, organized and edited: An approach to curriculum planning. (The entire issue including contributions from twenty-four leaders in various aspects of American life.) Teachers College Journal, Decemeber, 1963, 35.

American education week: Its significance. School and Community, October, 1964, 51, 36-37, 44.

Conceived, organized and edited: Why Johnny can: What's good about American public education. Teachers College Journal, October, 1964, 36, 1-59. (The entire issue including contributions from thirty-eight authorities.)

A call for leadership: Time for a civil responsibility movement. Teachers College Journal, January, 1966, 37, 159-160.

Journal of the Association for the Study of Perception. 1967-76.

Editor: School Research Newsletter, 1967-69.

Motivating teachers. Texas Journal of Secondary Education, Spring, 1967, 22, 23-25.

Ellis, J. F. & Brode, L. Observing classrooms by TV: An experiment in teacher education. Cablecasting and Educational Television, November, 1967, 3, 5, 20-22.

Should students be told their IQ? An old question studied from a new dimension. School Counselor, November, 1967, 15, 118-124.

Opinions regarding the value of teaching experience for educational researchers. Journal of Teacher Education, Spring, 1968, 19, 114-115.

Ellis, J. R. & Many, W. Relationships between creativity and report of selfconcept of ability for upper elementary school children. Illinois School Research, November, 1968, 5, 11-15.

Ellis, J. R., Bodzewski, L., Collins, H. & Farris, C. Tough minded survey puts criticism to work. Nations Schools, June, 1968, 81, 46-47.

Ellis, J. R. & Frey, S. Educational psychology and teaching: Opinions of experienced teachers. Teachers College Journal, December, 1966, 38, 3, 88-91.

Ellis, J. R. & Thompson, M. L. National survey of student unrest in American colleges and universities. Phi Delta Kappan, November, 1969.

Action research revisited. Illinois Journal of Education, January, 1969, 3-8.

Ellis, J. R., Rice, D. & Buser, R. Educational evaluators--A model for task oriented position development. Contemporary Educations, January, 1970, 41, 3, 115-118.

Environmental decay: A challenge to educational leadership. School Research Quarterly, June, 1970, 4.

Ellis, J. R. & Brode, L. Observing classrooms by TV: An experiment in teacher education. Cablecasting and Educational Television, November, 1967, 5, 20-22.

Ellis, J. R. & King, J. A survey of the characteristics judged to contribute to the ineffectiveness of college teacher educators. Journal of Teacher Education, Fall, 1971, 22, 3, 331-334.

Ellis, J. R. & Peterson, J. The effects of same class organization on junior high school students' academic achievement, self-concept, sex role identification and attitude toward school. Journal of Educational Research, July-August, 1971, 64, 10, 455-464.

Ellis, J. R., Mayers, C. & Many, W. personal practices in teacher education programs. Journal of Teacher Education, Winter, 1972, 23, 4, 482-490.

Ellis, J. R., Abrams, P. & Many, W. In-service education in American senior colleges and universities: A status report. Illinois School Research, Spring, 1972, 46-51.

Ellis, J. R. & Kinney, G. (Eds.) Nutrition education: Preparation for education. THRESHOLDS in Education, November, 1978, 4, 4, 17-19.

Ellis, J. R. & Triplett, D. (Eds.) Education of native Americans today. THRESHOLDS in Education, May, 1978, 4, 2.

Ellis, J. R. & Ford, B. An exploration of career education programs for gifted students in Illinois. Roper Review, A Journal on Gifted Child Education, Winter, 1977.

Ellis, J. R. (Ed.) The school as an instrument for peace. THRESHOLDS in Education, May, 1975, 1, 2.

Ellis, J. R. (Ed.) The school as an instrument for population control. November, 1976, 2, 4.

Ellis, J. R. & Radebaugh, B. (Eds.) Education for unity within a diverse community. THRESHOLDS in Education, May, 1980, 6, 2.

Ellis, J. R. & Pourchot, L. (Eds.) Curriculum for survival. THRESHOLDS in Education, February, 1981, 7, 1.

Ellis, J. R. & Thompson, M. L. Persistent difficulties of teacher evaluation. Illinois School Research and Development, Spring, 1981, 17, 3, 1-8.

Ellis, J. R., Lotsof, A. & Mathews, G. First year special education teachers' perceptions of professional roles performance difficulties. Illinois council for Exceptional Children Quarterly, Summer, 1982, 31, 3, 11-18.

Ellis, J. R. & Frey, S. A study of early educator retirement in Illinois' public schools. Mid-western Educational Researcher, September, 1982, 3, 3, 13-18.

Ellis, J. R. & Scarborough, J. D. An innovative approach to delivering vocational education learning experiences. Illinois Industrial Educator, Fall, 1982, 4, 1,8-9.

Ellis, J. R., Green, H. & Fanning, F. Difficulties encountered by first year early childhood teachers in Illinois public schools. Early Child Development and Care, October, 1982, 9, 2, 175-185.

Ellis, J. R., Frey, S., & Thompson, T. A study on educator drop-out in Illinois public schools. Illinois Guidance and Personnel Association Quarterly, Summer, 1982, 86, 24-28.

Consultantships and Special Projects

Consultant:

Evaluator Development Program
Cooperative Educational Research Laboratory, Inc.
AUSOE funded regional laboratory
Chicago, IL (1967)

Welsch School Training & Development Center
Title III, ESEA Project
Rockford, IL (1970-71)

State Title I Office
Office of the Superintendent of Public Instruction
State of Illinois
Springfield, IL (1966, 1970-71)

National Dairy Council
Rosemont, IL (1977)

Development of Instruments to Determine Peer Group Perceptions of the Sociological Status of Students Attending Area Vocational Centers
State of Illinois Advisory Council on Vocational Education
Springfield, IL (1973)

Vocational Educational Feasibility Study
Northwest Suburban Cook County
Mt. Prospect, IL (1982-83)

Principal Evaluator:

Alton Area Supplemental Service Center
Title III, ESEA Project
Alton, IL 1968-70)

DeKalb County Natural Resources Education Demonstration Center
Title III, ESEA Project
Genoa, IL (1968-70)

Elk Grove Training and Development Ctr
Title III, ESEA Project
Arlington Heights, IL (1966-69)

Rockford Program for Gifted Students
Illinois Program for Gifted Students
Rockford, IL (1970-72)

Project BRIGHT, Title III ESEA
Watertown, WI (1973)

Project People
Title III ESEA Project
Naperville, IL (1975-76)

Residential Program for Emotionally Disturbed Children Who Exhibit the Symptomatology of Delinquency
Title III, ESEA Project
Chicago, IL (1971-72)

Study Skills Center Project
Lincoln Land Community College
US Office of Education Funded Project
Springfield, IL (1976-77)

Evaluator--Co-Evaluator:

State Title III Office
Office of the Superintendent of Public Instruction
State of Illinois
Springfield, IL (1970-71)

Reducing Dropouts through Achievement Motivation
Title III, ESEA Project
Winnebago County
Rockford, IL (1973)

Little Big Horn School (American Indian School)
Title III, ESEA Project
Board of Education
Chicago, IL (1973)77)

Project Wingspread
Educator for Metropolitan Living
Title III, ESEA Project
Chicago, IL (1971)

Project CHILD
Changing Human Interests & Learning Development
Title III, ESEA Project
West Chicago, IL (1971)72)

Project Renewal
Title III ESEA Project
Wheeling, IL (1974-76)

Comprehensive High School Reading Program
Title III, ESEA Project
Morgan Park High School
Chicago, IL (1974-77)

Television of Disadvantaged Adults
Dept. of Vocational & Technical Education Project
Springfield, IL (1972-73)

School District Educational Effectiveness & Fiscal Efficiency Project
School District 122, Winnebago County
Rockford, IL (1972-73)
Northwest Area Service Center for Educators of Gifted Children
State of Illinois supported project
Rockford, IL (1971-72)

(with Peter Abrams)
Lake County Mastery Learning Program
Title IVc ESEA Project
Lake County, IL (1979-1980)

McHenry County Nutrition Education Network
McHenry County, IL (1979-1980)

Northwest Cooperative in Education: Illinois Center for Education Improvement
Arlington Heights, IL (1980-81)

Alternate Delivery Systems for Vocational Education
Illinois State Board of Education
Springfield, IL (1982-83)

Principal Investigator:

Demographic Survey
Hinsdale Public Schools & Community
Hinsdale, IL (1970)

Relationships Between Informed IQ Score and Student Report of Self Concept of Ability to do School Work
Northern Illinois University
DeKalb, IL (1966)

An Impact Assessment of the Demonstration Center as a Dissemination Technique
Division of Vocational & Technical Education
State of Illinois
Springfield, IL (1974)

Effects of Same Class Organization on Junior High School Students' Academic Achievement, Self Discipline, Self Concept, Sex Role Identification and Attitude Toward School
US Office of Education Funded study
Northern Illinois University
DeKalb, IL (1967-68)

Study of the Relationship Between Research Activities and the Reported Teaching Effectiveness of College Professors
Northern Illinois University
DeKalb, IL (1968)

A Follow-Up Study of Participants in Illinois Projects Funded with Grants from the Education Profession Development Act (533) for Fiscal Years 1969-73
Division of Vocational & Technical Education
State of Illinois
Springfield, IL (1975)

An Exploratory Study of Professional Opinions and Current Practices Regarding Career Education for Exceptionally Gifted and Talented Students
Department of Adult, Vocational and Technical Education
Illinois Office of Education
Springfield, IL (1976)

Project Director:

Northern Illinois University Under-Graduate Educational Research Training Program
US Office of Education Funded Program (1966-67)

Action Research Inservice Training Program
Illinois Office of Education Funded Project (DAVTE)
Springfield, IL (1976-77)

Planner:

Proposed College of Police Science for the State of Illinois
Office of the State Superintendent of Public Instruction
Office of the Attorney General
State of Illinois
Chicago, IL (1968-69)

Woodstock Environmental Education Pro.
Title III, ESEA Project
Woodstock, IL (1971)

Interviewer/Observer:

Farm Machinery Survey
Dun and Bradstreet
Knoxville, TN (Summer, 1950)

Researcher:

Title I Needs Assessment Survey
Board of Education
City of Chicago
Chicago, IL (1972)

Research and Evaluation Experience
Rural School Desegregation Project
Tennessee Council on Human Relations
Chattanooga, TN (1955-56)

Member:

Illinois State Board of Education's Research and Evaluation Advisory Council (1980-82)

Appendix B

Product Abstract

Illinois State Board of Education

Department of Adult, Vocational and Technical Education
Research and Development Section

Product Abstract

1. Title of material Final Report: FY 1982-83 Working at Saving Time in Education: An Innovative Vocational Education Delivery System
2. Date material was completed June 30, 1983
3. Please check one: New material ____ ~~Revised~~ Adapted material X Field-tested material ____
4. Originating agency Northern Illinois University, Department of Industry and Technology
   Address 205 Still Gym, DeKalb, Illinois Zip Code 60115
5. Name(s) of developer(s) Jule Dee Scarborough, Joseph R. Ellis
   Address 205 Still Gym, N.I.U., DeKalb, Illinois Zip Code 60115
6. Developed pursuant to Contract Number ____

7. Subject Matter (Check only one according to Department of Education Code):

   Code

   ____ 01 Agricultural Education
   ____ 03 Business and Office Education
   ____ 04 Distributive Education
   ____ 07 Health Occupations Education
   ____ 09 Home Economics Education
   ____ 10 Industrial Arts Education
   ____ 16 Technical Education
   ____ 17 Trade and Industrial Education
   ____ 22 Cooperative Education
   ____ Career Education
   X Other (Specify) Employability/Survival Skills

8. Education Level

   ____ Pre-K Thru 6 ____ 7-8 ____ 9-10 X 11-12
   ____ Post-Secondary ____ Adult ____ Teacher (Pre-service)
   ____ Administrator (Pre-Service) ____ Other (Specify) ____

9. Intended for Use By:

   ____ Student X Classroom Teacher X Local Administrator
   ____ Teacher Educator ____ Guidance Staff ____ State Personnel
   ____ Other (Specify) ____

10. Student Type:

    X Regular ____ Disadvantaged ____ Handicapped
    ____ Limited-English Proficiency ____ Other (Specify) ____

11. Medium and Format of Materials:

X HARDCOPY	___ VIDEOTAPE	___ FILM	___ MICROFICHE
No. of pages ____	____ Minutes	____ Minutes	___ B & W
___ Paper bound	___ B & W	___ B & W	___ Color
___ Hard bound	___ Color	___ Color	
___ Loose-leaf	____ inches	____ mm	
Photos: Yes ____	No ____		
Diagrams: Yes ____	No ____		

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___ Color
___ Audio
___ Carousel provided
___ Other packaging used
(Specify) _____

___ FILM STRIPS

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___ Color
___ Audio

X AUDIO

___ Automatic synch
___ _____ Hz
___ Manual cue
___ Reel
X Cassette
___ Cartridge

___ OTHER

Specify
_____
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14 What level(s) of assistance is required to provide implementation of this outcome?

X awareness
_____ understanding
_____ deciding
_____ implementing

15 Are Consultive/Inservice (or staff development) available? Yes_____ No_____

Contact
Illinois State Board of Education
Department of Adult, Vocational and Technical Education
Research and Development Section, E-426
100 North First Street
Springfield, IL 62777
(217) 782-4620

16 General Description (State the general objective and suggested method of use. Summarize the content and tell how it is organized. Write the description so that it can be used to promote the material. Continue on back of this sheet or on another sheet if necessary.) not applicable at this point

17 Person Completing this Abstract Jule Dee Scarborough, Director

Full Address

Department of Industry and Technology

Northern Illinois University

DeKalb, Illinois Zip 60115

III/5?

Appendix C

Letter to AVC Directors

Progress Reports

Manuscripts Submitted for Publication

Northern Illinois University
DeKalb, Illinois 60115

Department of Industry and Technology
815 753 1349

September 10, 1982

Dear Mr. Clayberg,

I thought you would like to know about Project Waste (Working at Student Time-saving in Education). This is a pilot study supported by the Illinois State Board of Education's Deparment of Adult Vocational and Technical Education and conducted at the Mid-Valley Area Vocational Center in Kane County by two Nothern Illinois University professors.

School buses have made it possible to increase the variety and richness of learning experiences provided students. However, the time that students spend on the bus is generally considered to be educationally inefficient and ineffective. The time that students spend riding to and from area vocational centers can be considerable and has caused concern. Project WASTE represents an attempt to deliver vocational education learning experiences to some students who ride the bus to the Mid-Valley Area Vocational Center. The Project will operate during the 1982-1983 school year.

These students use audio cassette recorders and headphones to listen to tapes. The Project has adapted audio tapes and supporting print materials for use on the bus. The content of this alternative delivery system is drawn from another DAVTE supported project, "A Curriculum Guide for Pre-Employment Skills."

We plan a careful evaluation of the Project and we will be pleased to share our experience with you should you have an interest in trying something like it with the students who ride buses to your center. Feel free to call or write us if you wish to know more about Project WASTE.

Sincerely,

Jule Dee Scarborough
Project Director

Joseph Ellis
Project Evaluator

Northern Illinois University is an Equal Opportunity/Affirmative Action Employer

WASTE Project Progress Report 1

TO: Jim Haire

FROM: Jule Dee Scarborough

RE: Project WASTE

REF: Progress Report #1

1. The activities accomplished according to the proposed schedule are:
   a. organized project, selected experimental and control groups, scheduled bus, engaged staff,
   b. identified units for study on bus,
   c. developed three mini-units (one week each) for pilot testing on bus,
   d. completed pilot testing of two units,
   e. developed and administered pilot pretests and posttests in both affective and cognitive domains for two of the units,
   f. dissiminated letter of announcement to directors of the area vocational centers in the state of Illinois,
   g. obtained the necessary equipment (recorders and headsets,
   h. an article will appear in the ILLINOIS INDUSTRIAL EDUCATOR, the official journal of the IIEA (fall, 1982, V4#1).

2. All acheduled tasks have been accomplished as indicated in the proposal.

3. Those activities to be completed during the reporting period of September 10 to November 30 are:
   a. Evaluate data collection,analyze, interpret pilot study,
   b. Provide feedback to appropriate Project personnel,
   c. Conduct meetings for the purposes of updating Project personnel,
   d. Field test the third pilot unit,
   e. Begin development of units for spring sessions (two) on bus.

4. Problems encountered during piloting and first report period are:
   a. lack of consultant funds to develop quality pilot units,
   b. lack of funds to engage instructional technologist

for quality taped materials,
c. problems with earphone connections (on tape recorders students could only hear out of one side, thus other ear heard outside sounds),
d. problems in controlling equipment distribution, usage, and storage,
e. students had problems writing on bus.

5. Corrective action taken with encountered problems:

a. The Project director, facilitator/evaluator, and research assistant overtimed to get the work accomplished,
b. The research assistant overtimed (an unbelievable amount of time) to get the tapes made,
c. The research assistant worked on each recorder individully to modify the jack,
d. The research assistant tried various methods of controlling the equipment distribution, usage, and storage; he will continue to try new methods of control.
e. The research director had her laboratory assistant make lapboards out of masonite to initially solve the writing problem.

6. The following problems are forecast for the next report period:
a. Lack of funds to engage consultants to provide desired quality in instructional materials,
b. Lack of funds to engage instructional technologist for taped materials,
c. Security and maintenance of instructional equipment (recorders, headsets, and tapes).

7. Used informal and formal feedback in the following ways:
a. Restricted student written responses until lapboards were made,
b. Repaired (temporaily) recorders,
c. Revised tapes.

8. The major needs of the project at this time are:
a. Additional funds for consultants and instructional technologist,
b. Improve quality of tapes (instructional materials),
c. Wire a bus to accomodate a multi-channel tape recorder set with multiple jacks for headsets.
d. Additional funds for use of sound-proof taping center (8.50/hour, 12.75/overtime or after 4:30) and for master tapes (reel to reel).

9. The general reaction of the Project staff, Mid-Valley Area

Vocational Center teachers and administrators and students (both experimental and control) is generally favorable and encouraging. However, the feedback indicates that "course content" material would be more beneficial.

Appendix

Project Progress Report #2

To: Jim Haire, ISBE/DAVTE

From: Jule Dee Scarborough, Project Director

Re: Project Waste

Ref: Progress Report #2

Date: Oct. 5, 1982 - Nov. 30, 1982

1. The activities accomplished according to the proposed schedule are:

   a. identified units to be developed for phase 2 (Spring) of project.

   b. engaged consultant to develop the units testing and instruments for phase 2 (Spring) (units nearly completed)

   c. completed scheduling arrangements for the phase 2 (Spring) units.

   d. prepared article to submit to VocEd for publication

   e. analyzed data from phase 1 (Fall), pilot part of study

   f. explored possibility of using unit so that only 1 recorder was necessary (help control project)

   g. discussed preliminary results of data analysis with Central High School and Midvalley

   h. proposed presentation for IVA 1983

   i. consistently respond to interest or requests for information

2. All scheduled tasks have been accomplished as indicated in the modified proposal.

3. Those activities to be completed during the reporting period of December 1, 1982 to February 1, 1983 are:

   a. review and revise units and related materials for phase 2 (Spring) instruction

   b. revise instruments and procedures for collecting analyses and interpretation of data

c. conduct meeting for purposes of updating project personnel

d. wire bus (contingent upon difficulty and availability of funds)

4. The problems encountered during the second report period were:

Constraints imposed by lack of consultant funds to develop quality units, including instructional materials (tapes).

5. The corrective action taken with encountered problems w s:

Obtained service of doctoral student in education to assist in unit/material development.

6. The following problems are forecast for the next report period:

a. uncertain as to bus being hired to facilitate instruction

b. equipment security/maintenance (if used)

7. Informal and formal feedback were used in the following ways:

a. unit development

b. refined testing procedures and instruments

c. informal project dissemination

8. The major needs of the project at this time are:

a. wiring of bus

b. increased funds for consultant and instructional technologist

c. improve quality of materials for instructional purposes over those used for pilot (phase 1, Fall 1982)

d. improves testing instruments and procedures

9. A summary of the preliminary pilot data is presented below. Below is a summary of the semantic differential scale which measured attitudes toward aspects of riding school buses:

a. For the ten measures regarding students attitudes towards the time spent on the bus contributing to their

educational goals, the pre- and post-test ratings indicate a positive change in attitude in more than half of the measures rated. For one measure there was no change and in two of the measures the attitudes shifted negatively.

b. For the 5 measures regarding students attitudes towards bus conditions permitting study, the pre- and post-test indicated a positive change in three measures. In two of the measures a negative changed was noted.

c. For most of the measures concerning having instructional materials readily available, a positive change occured.

10. A summary of the pilot data for cognitive outcomes for these mini-units of on-bus instructional time provided by this project is presented below.

a. For the seven measures regarding the unit on Sources of Employment the data indicated differences for pre- and post-test. Out of seven measures, five indicated gains in cognition.

b. For the ten measures on initial contact with an employer the pilot data indicated in six of the ten measures there were gains in cognition.

c. For the ten measures concerning job interviews the pilot data indicated that half had gains in cognition.

d. Generally, it appeared that students achieved most of the objectives for the units studied during the on-bus experience.

Appendix

Time on the School Busses: An Innovative Approach to Delivering Vocational Education Learning Experiences

by Julie D. Scarborough and Joseph E. Ellis

Area vocational centers have faced several problems and concerns since they have come on the educational scene in Illinois. While the majority of the problems have been dealt with effectively, there are still concerns about the costs of busing students to the vocational centers and the amount of instructional time lost while in transit.

How can students' time spent on the buses which take them to area vocational centers and to other sites as parts of cooperative agreements be spent wisely and effectively toward achieving quality vocational education outcomes? It is this question which give focus to the goals of Project WASTE. The Illinois State Board of Education's Department of Adult, Vocational and Technical Education has funded a project that is to investigate more efficient use of the time students spend on buses from high schools to area vocational centers. The project's title is "Working at Student Time-Saving in Education" (WASTE). More specifically, the project's two major goals are: (1) to make a wise, efficient and effective use of the time vocational education students spend traveling to sites for vocational education instruction by providing organized units of occupational survival skills/employability skills while on the bus, and (2) to develop and field test an adaptable model for providing educationally wise, efficient and effective use of student time spent on school buses.

Project WASTE is working to structure the bus time for Central High School in Barrington, Illinois, the Fox Valley Area Vocational Center for educational purposes. A group of vocational students from Barrington Central High School will participate as the experimental group. Groups from St. Charles, Geneva, and Batavia will serve as control groups.

While on the bus, the students will listen to audio-tapes by way of individual head sets. The material covered on the cassette tapes is to be taken from **A curriculum guide for pre-employment skills.** This guide was developed by Steve Pollock under contract to the Illinois State Board of Education's Department of Adult, Vocational and Technical Education's Research Division. Material from this guide is being selected and adapted to provide on-bus learning experiences.

The study focuses on teaching survival skills/employability skills primarily during bus time.

The specific objectives of the study are:

A. To develop a ride-to-area model for the educationally efficient, effective and wise use of vocational education students' on-bus time to achieve desired educational objectives. The model will include a rationale, goals, objectives, content, learning activities, materials and equipment, evaluation procedures, and instruments and a teacher's guide. All of these will be adapted for use by students in the on-bus study. Audio tapes will make up the major part of the instructional material supplemented by relevant handouts.

B. To provide evidence regarding the results of the project, i.e., evidence of a purposeful and organized effort to develop and implement and alternate system of delivering vocational education learning experiences to area vocational students who are bussed to area vocational centers.

C. Evidence that permits a response to the questions and objectives associated with the project and its effort to provide vocational education students who are bussed to their learning sites with quality on-bus learning experiences and thereby result in student time-saving and increased productivity.

The results and implications of the project will be disseminated throughout Illinois. The following dissemination activities will be used:

1. In fall of 1982, a personalized letter announcing the start of the project and promising to respond to their inquiries will be mailed to educational leaders throughout Illinois.

2. At the conclusion of the project, reports, units and materials developed by the project will be available to interested educators through ERIC/IVCE.

3. Shortly the outcomes of the project warrant, a conference for interested educators and school board members will be held in the late summer of 1983 to share the experiences of the project with the aim of creating awareness and conviction and offering follow-through services to those who would want to adopt the model. Professional journals also would receive manuscripts reporting the project's outcome.

An even larger audience of the dissemination, should its outcomes be judged important, would be educators, school boards and community leaders concerned with busing students for purposes of school consolidation, desegregation and/or providing special services. Again, if warranted, this audience would call for dissemination activities involving publications in professional journals, presentations at professional conferences and media exposure and a brochure publicizing Project WASTE. The project director might seek expanded support for the project to allow it to provide follow through services and materials that would facilitate the efficient and effective adaptation and adoption of its model in a variety of settings.

The immediate target population of the project is high school vocational education students who ride school buses to the Fox Valley Area Vocational Center in Kane County, Illinois. If the goals and objectives of the project are met, these students will have spent their travel time on the bus in activities more vocationally wise, efficient and effective than had they not participated in the project.

In the largest sense, students who spend their time riding school buses may be considered a target population of the study. If the goals of the project are met, the model to be developed by the project might be adapted for use by Illinois area vocational centers and cooperative agreement programs requiring student

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Julie D. Scarborough is an Assistant Professor in the Department of Industry & Technology at Northern Illinois University, DeKalb, Illinois, and Director of Project WASTE.

Joseph E. Ellis is a Full Professor in the Department of Learning, Development and Special Education at Northern Illinois University, DeKalb, Illinois.

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bussing to provide on-bus vocational education learning experiences and outcomes similar to those mentioned in the paragraph above. Indeed, school administrators rationally may have a field tested model that could be adapted for use within several curricular areas in a variety of situations in which students must spend time traveling on school buses. The impact of this would be a wiser, more efficient, more effective use of bussing for providing desired learning experiences than presently exists.

When looking to the future, the researchers foresee a second year in which they would explore the use of course content on audio-tapes during bus time to provide lecture-type material to prepare the students for job skill training at the center. This, of course, would take the cooperation of area vocational center instructors and offers almost unlimited possibilities. Students could then receive a great deal of class time lecture information before they reach their classes which would make vocational education more efficient.

For information regarding this project, feel free to contact any of the following people:

Dr. Jule Lee Scarborough, Director
Department of Industry and Technology
Northern Illinois University
DeKalb, IL 60115
815/753-0526

Dr. Joseph Ellis
Dept. of Learning, Development and Special Education
Northern Illinois University
DeKalb, IL 60115
815/753-0650

Dr. Thomas Erekson
Coordinator for Vocational and Technical Education
Northern Illinois University
DeKalb, IL 60115
815/753-1306

★ ★ ★

Make Your Reservation Now for the 1982 Convention

1982 AVA Convention - St. Louis

The 1982 American Vocational Association National convention will be held in St. Louis, Missouri, on December 3-7, 1982. This will be the last time for several years that the AVA will have their national convention in the mid-west. Also, with the next IIEA/IVA convention scheduled for August of 1983, we wish to encourage all IIEA members to attend AVA.

The Industrial Arts Division of AVA has an excellent program planned. Along with the traditional general sessions, the IA Division has scheduled several "teacher workshop" sessions. These presentations are planned to be of interest to industrial arts teachers in junior and senior high schools. They are scheduled for Saturday and Sunday to allow classroom teachers to attend without missing any school time. The following topics are representative of the teacher workshop sessions scheduled by the IA Division for the St. Louis Convention:

-Welding Gator Skills Training & Interactive Simulator Equipment
-Computer Assisted IA Instruction
-A Unique Way of Teaching Construction
-Solar Energy Vocations - Now
-How to Start A Low Cost Computer Aided Drafting System
-Helping Your Students Read Technical Information in IA
-Safe and Sane Youth Chemical Hazards
-Activities for Community Service & Legislative Change
-Plasticizing Wood Using Ethylene Ammonia
-How Do Students Benefit From IA?
-Industrial Toxicology and Hygiene
-Communications
-Micro Computer Applications in IA - Hands on Workshop

Other sessions include topics related to working with school boards, IA's role in human resource development, training & development in industry, industrial robotics, recruitment of students for IA, professional burnout, the Illinois plan for industrial education, and many more. In addition to the regular sessions, the AVA Convention has extensive commercial exhibits, tours, festive activities, etc. If you have never been to a NATIONAL convention, you should make every effort to attend AVA in St. Louis. It will be well worth the time, effort and expense. See you there!

THE AMERICAN VOCATIONAL ASSOCIATION 1982 CONVENTION, DEC. 3-7, 1982.

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Metro Convention Plaza
St. Louis, MO 63101

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1. Stouffer's Riverfront Towers	$50	$62
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3. Radisson	40	45
4. Marriott Pavilion	52	62
5. Bel-Air Hilton	49	59
6. Mayfair	41	49
7. Holiday Inn Riverfront	44	54
8. Holiday Inn Downtown	35	40
9. Rodeway Inn Downtown	35	40
10. Ramada Inn Downtown	35	40
11. Chase Park Plaza	42	52
12. St. Louisian	34	44

Appendix

The School Bus as a Vehicle for Delivering Vocational Education

Jule Dee Scarborough and Joseph R. Ellis

The wise and efficient use of resources and time, and the achievement of quality outcomes, permeate the intentions of almost all enterprises. Especially are these management areas crucial today when resources and time are scarce and the demand for quality products intense. Just as these three concerns are prevailing in American industry, commerce and agriculture, public education now must also give renewed emphasis to them in its efforts to achieve increased effectiveness and efficiency while producing a high quality product.

To help assure the efficient use of resources while providing access for students to a diverse vocational education program, the Illinois State Board of Education/Division of Adult Vocational Technical Education (ISBE/DAVTE) has supported the establishment of secondary area vocational centers. The concept of the area vocational center was initiated to allow several schools to cooperate in the delivery of high quality vocational education at the preparation level. In most cases, the implementation of an area vocational center has included a building, or part of an existing school building, at a centralized location. This centralized location means that the students must be bussed to the area vocational center from their home high school. Area vocational centers then provide a two or three hour per day specialized training program.

During the year 1982-1983, a unique project supported by ISBE/DAVTE sought to provide an innovative vocational education delivery system for a group of students attending the Mid-Valley Area Vocational Center

located in Northeastern Illinois. The students enrolled at Mid-Valley are transported by bus from four area high schools. A persistent problem associated with the operation of area vocational centers and other cooperative programs concerns the costs of bussing students and the instructional time lost by students while traveling to these programs.

The amount of time each student spends riding the bus to a center varies considerably. A common criticism of bussing students to school--rather it be as a result of school consolidation or part of a school desegregation plan--is that too much student time is diverted from other needed experiences and thus, time students spend on the bus is often considered to be of little value, if not wasted.

How can student's time spent on the buses which take them to area vocational centers and to other sites as parts of cooperative agreements be spent wisely and efficiently toward achieving quality vocational education outcomes? It is this question which gave focus to the goals of the project described in this article. More specifically, the project sought (1) to make a wise, efficient and effective use of the time vocational education students spend traveling to sites for vocational education instruction by providing organized study on the bus and, (2) to develop and field test an adaptable model for providing educationally wise, efficient and effective use of student time spent on school buses.

Employment in today's technological world requires a person to be proficient in skills in locating, obtaining and surviving employment as well as being technically competent. During the first year of the project (1982-83), the learning experiences provided the students while

they were on the bus, focused on occupational survival skills/employability skills.

The project operated in two phases during the fall semester, 1982 and the spring semester, 1983. The first phase consisted of a pilot study involving 21 high school students who rode the bus for a period of 20 minutes each way from their high school to the area vocational center. During this phase, the instructional materials were developed, field-tested and refined. Audio-tape players were used as a delivery system. Each student was provided daily with a cassette tape player, a headset, and cassettes containing the material to be presented. Used in conjunction with the cassette tapes were handouts and worksheets. Lap boards were provided each student to write on. The on-bus part of the pilot phase extended for a period of three weeks. This involved the travel time to the area vocational center and the return to the high school each day.

Additionally, during the pilot phase, instruments for pre- and posttesting were developed and field tested. These were measures of student attitudes toward their experiences while on the bus and for cognitive achievement of the content presented.

After the on-bus part of the pilot study, it was decided that using individual tape players caused confusion and was time-consuming. To eliminate this confusion, the bus was simply wired with jacks to accommodate the headsets. Thus, the students had to contend only with headsets and lapboards. Furthermore, the results of the pilot study lead to the refinement of the instructional materials including the quality of the cassette tapes, handouts and worksheets.

The on-bus part of phase two of the project operated for a period of two weeks. During this time, the refined materials consisting of two units on occupational survival skills/employability skills were presented. Twenty-four students were involved with the on-bus instruction.

A graduate student, serving as a teacher aid, distributed the materials and equipment to the students as they boarded the bus, supervised the experience while in transit, and collected the materials and equipment at the end of each trip. A duplicate of all materials used was placed in the school library for those students absent from the on-bus experience or for those wanting to review the materials presented.

For the evaluation of the project, a pre- posttest control group design was used. The students taught on the bus served as the experimental group, while those students not receiving on-bus instruction were the control group. The evaluation results on student attitudes indicated that the students taught while on the bus had a more favorable attitude toward their experience while riding the bus than did those students who received no on-bus instruction. Concerning their awareness of occupational survival skills/employability skills, those students taught on the bus made progress in achieving the objectives of the two units presented. For one of the units, a highly statistically significant difference was found between the pre- and post-measures of achievement.

Perhaps of equal importance was an observation provided by the driver of the experimental group. This driver reported that the on-bus instruction resulted in much improved student control, increased travel safety, and discipline problems became non-existent. In summary, it

would appear that in transit time while on the school bus can be used efficiently and effectively to deliver vocational education.

It is expected that the project will be continued during the 1983-84 school year. The project will be expanded to include a second area vocational center and focus on content from the technical areas taught at the vocational centers.

Further expansion will include development and presentation of content from selected academic areas. The need for providing these vocational education students with academic content arises from the restrictions imposed on their overall school schedules as a result of time spent in transit as well as at the area vocational center.

On-bus instruction for a variety of students may well provide for much improved efficiency and effectiveness in the use of one of the nation's most valuable resources, student time!

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Caption

Students learn vocational education while riding school bus.

Appendix

How to Make Better Use of Student Time

Jule Dee Scarborough and Joseph R. Ellis

To help assure the efficient use of resources while providing access for students to a diverse vocational education program the Illinois State Board of Education/Division of Adult Vocational Technical Education (ISBE/DAVTE) has supported the establishment of secondary area vocational centers. Illinois now has thirty-seven of these centers. The concept of the area vocational center was developed to allow several schools to cooperate in the delivery of high quality vocational education at the preparation level. In most cases, the implementation of an area vocational center has included a building, or part of an existing school building, at a centralized location. This centralized location means that the students must be bussed to the area vocational center from their home high school and returned to their high schools. Area vocational centers provide these students with a two or three hour per day specialized training program.

The bussing of students often creates problems. To attend an area vocational center, most students must give up time in other classes (vocational and/or general) to have time to get to and from the area vocational centers. Therefore, it is important to find a way to make wise and efficient use of the time vocational students spend on the bus while in transit to and from the area vocational centers. Students' time is valuable. It is up

to school board members and educators to see that that time is spent in the most efficient and effective educational manner possible, especially with the constraint on resources and achievement caused by current economic conditions. Quality outcomes are possible only if time and resources are used efficiently and effectively. Thus, a common criticism of area vocational centers has been that too much time is diverted from other needed experiences as a result of the in-transit time to and from the centers. This time is considered to be of little educational value if not wasted.

During the year 1982-1983, a unique project (Working at Saving Time in Education, WASTE) supported by ISBE/DAVTE sought to provide an innovative vocational education delivery system for a group of students from Burlington Central High School in Kane County who attend the Mid-Valley Area Vocational Center located in northeastern Illinois. The students enrolled at Mid-Valley are transported by bus from four area high schools. Time lost by students while traveling to these programs long has been a concern of the parents, board members and educators involved.

How can students' time spent on the buses which take them to area vocational centers and to other sites as parts of cooperative agreements be spent wisely and efficiently toward achieving quality vocational education outcomes? It is this question which gave focus to the goals of the project described in this article. More specifically, the project sought (1) to make a wise, efficient and effective use of the time vocational

education students spend traveling to sites for vocational education instruction by providing organized study on the bus and, (2) to develop and field test an adaptable model for providing educationally wise, efficient and effective use of student time spent on school buses.

Employment in today's technological world requires a person to be proficient in skills in locating, obtaining and surviving employment as well as being technically competent in job performance. During the first year of the project (1982-83) The learning experiences provided the students while they were on the bus focused on occupational survival skills/employability skills.

The Project operated in two phases, the first during the fall semester of 198 and the second during the spring semester of 1983. The first phase consisted of a pilot study, which provided an experience base for developing the model implemented during the second phase of the Project.

Phase two of the project operated for a period of two weeks. During this time, the refined materials consisting of two units on occupational survival skills/employability skills. These were presented to twenty-four students were involved in the on-bus instruction. They were the only students on the bus.

A Northern Illinois University graduate student, serving as a teacher aid, distributed the materials and equipment to the students as they boarded the bus, supervised the experience while in transit, and collected the materials and equipment at the end of each trip. An audio-tape player was used as the main element

in the Project's delivery system. Each student was provided daily a headset and a lap board. Used in conjunction with the cassette tape were handouts and worksheets. A duplicate of all materials used was placed in the school library for those students absent from the on-bus experience or for those wanting to review the materials presented.

For the evaluation of the project, a pre- posttest control group design was used. The students taught on the bus served as the experimental group, while those students not receiving on-bus instruction were the control group. The evaluation results regarding student attitudes indicated that the students taught while on the bus had a more favorable attitude toward their experience while riding the bus then did those students who received no on-bus instruction. Concerning their awareness of occupational survival skills/employability skills, those student taught on the bus made progress in achieving the objectives of the two units presented. For one of the units, a highly statistically significant difference was found between the pre- and post-measures of achievement.

Perhaps of equal importance was a report govem by the driver of the experimental group. This driver observed that the on-bus instruction resulted in much improved student control, increased travel safety, and discipline problems became non-existent.

Several problems were inherent within the project. During Phase I of the project, equipment handling was time-consuming. Approximately thirty tape-players, cassette tapes, headsets and

materials had to be distributed and taken up. Also, the equipment had to be stored, maintained, and repaired if broken during handling. The tape players worked and were effective, however, a better method was to wire the bus with the number of jacks necessary to accommodate the headsets Thus, only one tape player had to be used. This arrangement could also work with a multi-channel player so that more than one subject area could be presented at once (such as the one on airplanes). A second problem encountered was that of using materials which required the students to write. Project personnel found that lap boards (simple ones made of masonite) made writing on the bus an appropriate activity, however worksheets were used that only needed short answers or checks and circles. Having minimal written activities seemed to strengthen concentration upon the audio-taped part of the lesson. In other words, students focused on the written activity rather than outside of the bus. Finally, once the bus was wired for approximately thirty jacks, volume was a problem. It was necessary to use a power booster to increase the volume throughout the bus. An additional note is that the students did not want to give up their social time for instruction, partially because they were the only group having to do so, however, once they were part of the program their attitudes changed positively.

In summary, it would appear that in-transit time while on the school bus can be used efficiently and effectively to deliver vocational education. It follows that this innovative delivery system could benefit other students who ride the bus, including

those in athletics, special education, and music.

It is expected that the project will be continued during the 1983-84 school year. The project will be expanded to include a second area vocational center and focus on content from the technical area taught at the vocational centers. The Project will continue to emphasize the most valuable resource in education, student time!

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Appendix

A New Type of Experience for Industrial Education Students

Jule Dee Scarborough
and
Joseph R. Ellis
Northern Illinois University

In today's technological world students have a variety of alternatives for receiving learning experiences. Educators must strive for effective and efficient delivery of learning experiences. In the field of industrial education many students travel to area vocational centers. The amount of instructional time lost while in transit consumes a considerable part of the students' school day. Also, a major reason that field trip and/or cooperative arrangements are not used more often than currently is due to the time lost during travel.

How can industrial education students' time spent on the buses which take them to school, area vocational centers and other sites as part of cooperative agreements be spent wisely and effectively toward achieving quality industrial education outcomes? It is this question which gave focus to the goals of the project reported here. The Illinois State Board of Education's Department of Adult Vocational and Technical Education has funded a project which is investigating efficient uses of the time students spend on the buses from high schools to area vocational centers. The project's title is "Working at Student Time-Saving in Education" (WASTE). More specifically, the project's two major goals are: (1) to make a wise, efficient

and effective use of the time industrial education students spend traveling to sites for industrial instruction by providing organized study of occupational survival skills/employability skills while on the bus and (2) to develop and field test an adaptable model for providing educationally wise, efficient and effective use of student time spent on school buses.

Project WASTE is designed to structure the time industrial education students spend on the school bus for educational purposes. In the largest sense, students who spend their time riding school buses may be considered a target population of the study. The bused students were divided into experimental and control groups. The experimental group consisted of one complete bus load of students. Students riding any other bus at the same time were the control group. While on the bus, the experimental group listened to specially prepared audio-tapes by way of individual headsets. The material covered on the cassette tapes was adapted from curriculum guides for job survival skills and pre-employment skills. The control group did not receive any on-bus instruction.

During the year 1982-83, the project achieved the following outcomes:

A. An adaptable field-tested model for the educationally efficient, effective and wise use of industrial education students' on-bus time. The model includes a rationale, goals, objectives, content, learning activities, materials and equipment, evaluation

procedures, and instruments. Audio-tapes provided the primary mode of the instruction. These tapes were supplemented by relevant handouts and worksheets.

B. Research evidence regarding the results of implementing an alternate delivery system for educational purposes.

The project operated in two phases. During fall, 1982, a pilot study was conducted. Twenty-one students participated who rode the bus from Burlington Central High School to the Mid-Valley Area Vocational Center in Northeastern Illinois. During this part of the study the researchers developed/adapted materials and determined the physical logistics for handling materials and equipment.

Phase two of the project occurred during the spring semester of 1983. For a two week period of time for twenty minutes to and twenty minutes from the area vocational center, twenty-four students (experimental group) were instructed in occupation survival/employability skills by way of audio-tapes. Text coordinated handouts and worksheets were used along with the taped presentations. Pre-tests and posttests, as well as an attitude survey, were given at the beginning of each unit. There were two units, each one week in length presented during phase two of the project. The control group (those not receiving instruction during their bus trip) were also tested for research purposes. A graduate assistant served as teacher's aid and rode the bus during the time on-bus instruction was used. However, this person could be any competent person within a school

system's employ.

The evaluation results of the study indicated that the experimental group (those taught while on the bus) had a more favorable attitude toward their experience while riding the bus than those who received no on-bus instruction. Concerning their awareness of occupational survival/employability skills, those students taught during their time on the bus achieved the project's objectives for one of the units presented. A significant difference was found between the pre-and posttest measures (.001 level of confidence). Perhaps of equal importance was the bus driver's report that on-bus instruction resulted in improved student control and increased safety. In other words, discipline problems became non-existent. This indicates that if instruction was combined with educational trips, class or school trips could become more viable as part of instructional programs to help bring the "real world" back into our instruction.

Several problems were inherent within the pilot phase of the project. During the pilot phase equipment handling, storage and maintenance was difficult. Twenty-one tape players, headsets, and sets of materials had to be distributed and taken up for each trip. As a means of cutting down on the amount of equipment during phase two, the bus was wired with jacks to accommodate the headsets. Thus, individual tap players were no longer needed. A second problem encountered was writing on the bus. Lap boards were made of masonite for the students' use and answers were kept short, making use of checks and circles. The final problem which

had to be resolved was that of electrical power. In using the bus' battery, a power booster was necessary to increase the volume so that the material presented was easily audible.

Project WASTE will continue for the year 1983-84. The goals for the second year are:

1) To expand the model.
2) To develop technical materials directly related to the technical courses the students are taking.
3) To expand to two Illinois high schools each feeding into a different area vocational center.
4) To expand the implementation time for on-bus instruction to six-eight weeks of lessons during the trips to and from the centers.

In summary, Project WASTE has the potential to impact education in many capacities as an alternative delivery system.

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Appendix

A New Approach to Handling Waste in Vocational Education

Jule Dee Scarborough
and
Joseph R. Ellis
Northern Illinois University

Area vocational centers have faced many problems and concerns since their inception. While the majority of these problems have been dealt with effectively, there are still concerns about the costs of busing students to the vocational centers. The amount of instructional time lost while in transit consumes a considerable part of the student's school day.

How can students' time spent on the buses which take them to area vocational centers and to other sites as parts of cooperative agreements be spent wisely and effectively toward achieving quality vocational education outcomes? It is this question which gave focus to the goals of Project WASTE. The Illinois State Board of Education's Department of Adult, Vocational and Technical Education has funded a project which is investigating efficient uses of the time students spend on the buses from high schools to area vocational centers. The project's title is "Working at Student Time-saving Education" (WASTE). More specifically, the Project's two major goals are: (1) to make a wise, efficient and effective use of the time vocational education students spend traveling to sites for vocational education instruction by providing organized study of occupational survival skills/employability skills while on the bus and (2) to develop and field test an adaptable model for providing educationally wise, efficient and effective use of student time spent on school buses.

Project WASTE is designed to structure the bus time from Central High School in Burlington, Illinois to Mid-Valley Area Vocational Center in Kane County, Illinois for educational purposes. A group of vocational students from the high school are participating as the experimental group. Groups from other schools which participate at the Center serve as control groups.

While on the bus, the students listen to audio-tapes by way of individual head sets. The material covered on the cassette tapes was taken from A Curriculum Guide for Pre-employment Skills.

The Project is planned to achieve three outcomes:

A. An adaptable field-tested model for the educationally efficient, effective and wise use of vocational education students' on-bus time to achieve desired educational objectives. The model will include a rationale, goals, objectives, content, learning activities, materials and equipment, evaluation procedures, and instruments

and a teacher's guide. All of these will be adapted for use by students in the on-bus study. Audio tapes will make up the major part of the instructional material supplemented by relevant handouts and worksheets.

B. Evidence regarding the results of the project; i.e., evidence of a purposeful and organized effort to develop and implement an alternate system of delivering vocational education learning experiences to high school students who are bused to area vocational centers.

C. Evidence that permits a response to the questions and objectives associated with the project and its effort to provide vocational education students who are bused to their learning sites with quality on-bus learning experiences and thereby result in student time-saving and increased productivity.

Upon completion of the Project, its results and implications will be disseminated broadly. An ever larger audience of the dissemination, should its outcomes be judged important, would be educators, school boards and community leaders concerned with busing students for purposes of school consolidation, desegragation and/or providing special services. Again, if warranted, the project director will seek expanded support to allow for providing follow through services and materials that would facilitate the efficient and effective adaptation and adoption of its model in a variety of settings.

In the largest sense, students who spend their time riding school buses may be considered a target of population of the study. If the goals of the project are met, the model to be developed by the project might be adapted for use by area vocational centers and cooperative agreement programs requiring student busing to provide on-bus vocational education learning experiences and outcomes similar to those mentioned in the paragraph above. Indeed, school administrators nationally may have a field tested model that could be adapted for use within several curricular areas in a variety of situations in which students must spend time traveling on school buses. The impact of this would be a wise, more efficient, more effective use of busing for providing desired learning experiences than presently exists.

When looking to the future, the researchers foresee a second year in which they would explore the use of course content on audio-tapes during bus time to provide lecture-type material to prepare the students for job skill training at the center. This, of course, would take the cooperation of are vocational center instructors and offers almost unlimited possibilities. Students could then receive a great deal of class time lecture information

before they reach their classes which would make vocational education more efficient. If the goals and objectives of the project are met, the participating students will have spent their travel time on the bus in activities more educationally wise, efficient and effective than had they not participated in the project.

About the authors:

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Appendix D

Summation of Evaluation Data

6. EVALUATION RESULTS FY 1982-83 (First Year of the Project)

The Project's evaluation plan was designed to provide an evidence base for answering the four general questions which appear below.

1. TO WHAT EXTENT HAS THE PROJECT ACHIEVED ITS STATED INTENTIONS?

Objective #1 Near the end of the Project, those associated with the operation of the Project will provide feedback on the instructional package model developed and tested with the students riding the school bus.

The model developed for the study was an alternative delivery system for vocational education students. The model was designed to provide on-bus instruction using audio-tapes and supportive material, hand-outs, worksheets, and assignments, as well as, pre and post unit tests.

The two units of the model were adapted from Steve Pollock's "A Curriculum Guide for Pre-employment Skills" (A DAVTE funded project, 1978).

The school bus which transports students from high schools to area vocational centers was wired with jacks to accommodate headsets for each student. A power booster was used in conjunction with a tape player to provide on-bus instruction to the twenty-four participating students. Lap boards were used so that writing was possible as part of the instructional methods.

During the fall semester 1982, the weeks of on-bus instruction served as the pilot in developing the model. After revisions implementation occurred during a two-week period during

the second semester. The evaluation results of the implementation phase appear elsewhere in this document (see TABLE I, II).

Objective #2 Near the ninth month of the Project, using an attitude measure to be developed by the Project's staff, 75% of the students participating in the Project will respond by indicating an increase in the educational value of the time that they spend on the school bus in transit to and from the Mid-Valley Area Vocational Centers.

The evaluation data indicates that Objective #2 was achieved (see TABLE I).

All students who attended the Mid Valley Area Vocational Center during the second semester of the 1982-83 year were administered the "Student Opinion Rating Scale." This instrument was developed by the Project's staff and was designed to measure student attitudes about the time that they spend riding the school bus to and from the Mid-Valley Area Vocational Center. Those students who were taught on the bus formed the experimental group and the other students comprised the control group. The data were analyzed by use of the chi square (X2) test to determine the significance of the difference between the responses of the two groups on nine attitudinal measures. The results of this analysis appear in TABLE I. From an examination of the data presented in TABLE I, it can be noted that the experimental group differed significantly and in more positive

direction from the control group in eight of the nine specific analyses. Thus, it can be concluded that the experimental group did undergo a positive change in their opinion about the time that they spent riding the school bus and that they differed significantly and in a more positive direction from the control group in their bus ride to and from the Mid-Valley Area Vocational Center.

Objective #3 Near the tenth month of the Project using an observational guide rating scale to be developed by the project's staff, vocational teachers at the Area Vocational Centers who teach students who have participated in the Project will indicate if they observed their students to have exhibited in their behavior increased concern for and competence in occupational survival skills/employability skills.

The evaluation data indicates that Objective #3 was achieved (see TABLE I).

Objective #4 At the beginning and conclusion of each of the units to be taught as part of the Project, participating students using a test of unit achievement will score 50% higher on the posttest than they did on the pre-test.

The evaluation data indicates that Objective #4 was achieved for one unit of study and not for another (see TABLE II).

Two units of study were developed in the area of

employability/job survival skills. These were taught on the school bus. Each unit involved five days of on-bus instruction and included the time students spent traveling to and returning from the Mid-Valley Area Vocational Center. A pre-test and a posttest of the content of each unit was given to the students. The results of these tests are presented in TABLE II. From an examination of these data it can be concluded that for Unit A, "Job Interview Techniques", the students made statistically significant gains in their cognitive achievement. The data for Unit B, "Job Survival" indicates that students did not make statistically significant gains in cognitive achievement (see TABLE II).

2. WHICH IDEAS, ROLES, ACTIVITIES, MATERIALS, CONTENT AND EQUIPMENT FACILITATED THE ACHIEVEMENT OF THE PROJECT'S STATED INTENTIONS?

The following factors were judged to have facilitated the achievement of the Project's goals.

Ideas - (1) The idea of on-bus instruction itself stimulated students, school staff and administrators very positively. (2) Students were positive toward receiving course credit for on-bus instruction.

Roles - (1) A graduate student was used for organizing and directing the on-bus instruction, while persons of other background could be used in this role, it is essential for the present model. Further development of the model may minimize the

necessity of the continued presence of such a person. (2) It is essential that the vocational education director, the principal and assistant principal of the high school, the bus drivers, the librarians, and the teachers cooperate.

Activities and Materials - (1) It was important that they begin the learning experience immediately upon boarding the bus. (2) Quality tapes were essential, as well as supplemental materials which enhanced concentration and interaction between the tape and the listener.

Content - (1) The difficulty level of the content selected, while of general interest to most students, was not challenging or related to an immediate programmatic need.

Equipment - (1) During the pilot part of the study, each student had a tape player, cassette tape and a headset. This was both cumbersome and constraining. However, during the implementation stage it was decided that a wired bus would better facilitate the instruction by reducing time in distributing equipment and providing greater control of presentation. Lap boards were found to facilitate written responses. A power booster was necessary with a single tape player. For multiple presentation and increased audibility a multiple

channel player with high power capabilities would be essential.

3. WHAT IMPORTANT UNINTENDED OUTCOMES ARE ASSOCIATED WITH THE OPERATION OF THE PROJECT?

Unintended outcomes were:

(1) The school bus driver indicated that on-bus instruction contributed highly to the ease and safety of her job and increased significantly student control. (2) There were other requests for project participation received from several high school and area vocational center administrators.

4. WHAT MODIFICATIONS IN THE PROJECT ARE WARRANTED BY THE RESULTS OF ITS EVALUATION?

The major modifications are:

(1) Expanding the content of presentations to include relevant technical information. (2) Expanding the Project to include an additional area vocational center and different high school. (3) Modifying the bus by using a multi-channel player for individualizing the content. For additional discussion of proposed modifications see Continuation Proposal for 1983-84.

*See Table I and Table II on the following pages.

TABLE I

Student Assessment Summary for Experimental and Control Group Differences Regarding Opinions about the Time These Students Spend Riding the School Bus To and From an Area Vocational Center

Assessment Questions	Student Responses					Chi Square*
When I think about talking, relaxing, or just kidding around with other students, I consider the time that I spend riding the school bus to be:	Group	Observed Enjoyable	Expected Enjoyable	Observed Not Enjoyable	Expected Not Enjoyable	Total	
	Experimental	22	(14.37)	0	(7.63)	22	X^2=12.88 df=1 p ≤.001 Sig.
	Control	59	(66.63)	43	(34.37)	102	
	Total	81		43		124	
	Group	Satisfying		Not Satisfying		Total	
	Experimental	16	(8.60)	0	(7.38)	16	X^2=9.39 df=1 p ≤.01 Sig.
	Control	40	(47.38)	48	(40.60)	88	
	Total	56		48		104	

TABLE I (Continued)

Assessment Questions	Student Responses					Chi Square*
When I think about needing materials to help me study, I consider the time that I spend riding the school bus to be:	Group	Observed Helpful	Expected	Observed Not Helpful	Expected	Total	
	Experimental	13	(6.55)	9	(15.45)	22	$X^2=9.25$ df=1
	Control	26	(32.45)	83	(76.55)	109	$p \leq .01$ Sig.
	Total	39		92		131	
	Group	Used Efficiently		Used Inefficiently		Total	
	Experimental	8	(4.23)	8	(11.77)	16	$X^2=4.05$ df=1
	Control	20	(23.77)	70	(66.23)	90	$p \leq .05$ Sig.
	Total	28		78		106	

TABLE I (Continued)

Assessment Questions**	Student Responses					Chi Square*
When I think about needing time to study my school assignments, I consider the time that I spend riding the school bus to be:	Group	Observed Organized	Expected Organized	Observed Unorganized	Expected Unorganized	Total	$X^2=2.31$ df=1 $p > .05$ NSD
	Experimental	10	(6.56)	10	(13.43)	20	
	Control	33	(36.43)	78	(74.56)	111	
	Total	43		88		131	
	Group	Useful		Not Useful		Total	$X^2=9.10$ df=1 $p \leq .01$ Sig.
	Experimental	15	(8.47)	5	(11.53)	20	
	Control	32	(38.53)	59	(52.47)	91	
	Total	47		64		111	
	Group	Time well spent		Time not well spent		Total	$X^2=5.28$ df=1 $p \leq .05$ Sig.
	Experimental	8	(3.89)	7	(11.10)	15	
	Control	19	(23.10)	70	(65.89)	89	
	Total	27		77		104	

TABLE I (Continued)

Assessment	Student Responses					Chi Square*
When I think about needing to achieve my educational goals, I consider the time that I spend riding the school bus to be:	Group	Valuable Use of Time		Not a Valuable Use of Time		Total	$X^2=6.10$ df=1 $p \leq .02$ Sig.
	Experimental	12	(6.67)	9	(14.32)	21	
	Control	29	(34.32)	79	(73.67)	108	
	Total	41		88		129	
	Group	Relevant		Not Relevant		Total	$X^2=3.86$ df=1 $p \leq .05$ Sig.
	Experimental	10	(5.9)	8	(12.10)	18	
	Control	28	(32.10)	70	(65.7)	98	
	Total	38		78		116	

* Yates - correction was applied to this chi square analysis.

TABLE II

Pretest and Posttest Mean Differences for Measures of
Two Units Provided as On-Bus Instruction

Units of Study	Analysis by the t-Test				
	Group Means	Standard Deviation	Difference in Mean	Standard Deviation	
Unit A (N=15)					
"Job Interview Techniques"	Pretest 7.200	1.897	1.800	1.612	t=4.32 df=14 $p \leq .001$ Sig.
	Posttest 9.000	1.464			
Unit B (N=18)					
"Job Survival"	Pretest 6.2227	2.557	-0.333	2.787	t=-0.51 df=17 $p > .05$ NSD
	Posttest 5.8889	1.875			

Appendix E

Letters of Interest

DAVTEA
UPAGE AREA VOCATIONAL EDUCATION AUTHORITY

301 NORTH SWIFT ROA
ADDISON, ILLINOIS 601
Dr. John Gibson, Director
312/620-8770

September 27, 1982

Ms. Jule Dee Scarborough
Project Director and
Mr. Joseph Ellis
Project Evaluator
Department of Industry & Technology
Northern Illinois University
DeKalb, IL 60115

Dear Ms. Scarborough and Mr. Ellis:

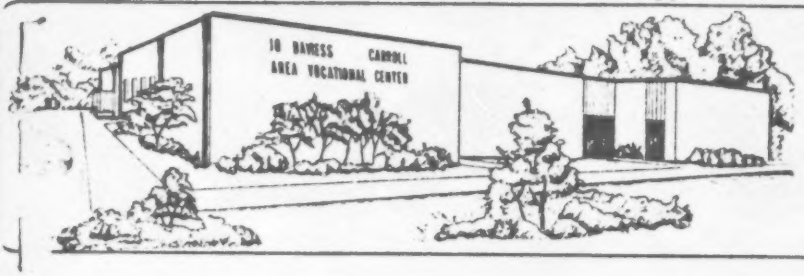
Thank you for your letter explaining Project Waste. We are interested in your project and would like more information. We would like to study the possibilities and be kept informed of results at Mid-Valley Area Vocational Center.

Sincerely,

John R. Gibson
Director

lw

A Vocational High School Offering Employment Training in Business, Indust
Transportation, Media, Applied Science and Personal & Public Service Care



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815-858-2203
LARRY P. ZIKMUND—DIRECTOR

September 24, 1982

Jule Dee Scarborough
Project Director
Northern Illinois University
DeKalb, IL 60115

Dear Ms. Scarborough:

Thank you for your letter dated September 10, 1982.

Approximately four years ago, we had the same idea but did not carry through with it. Some of our Community schools are 25 miles one way, and we were trying to come up with some idea on how we could make the bus trip easier and possibly a learning situation.

We are very interested in your project. If possible, I need more information and would like to meet with you to see what we can do in this rural area of Jo Daviess and Carroll counties.

Sincerely,

Larry P. Zikmund

Larry P. Zikmund
Director

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STEPHENSON AREA CAREER CENTER
Pearl City Road, Freeport, IL 61032 (815) 235-8025

September 24, 1982

Jule Dee Scarborough
Project Director
Dept. of Industry and Technology
Northern Illinois University
DeKalb, IL 60115

Dear Jule Dee:

Thank you for your information on Project Waste. Yes, we would be interested in more information about your project.

Sincerely,

Roy Monzo
Director

nk

Roy Monzo, Director Richard R. Linnell, Ass't Director

SEP 28 1982

VOTEC | VERMILION OCCUPATIONAL TECHNICAL EDUCATION CENTER
VERMILION COUNTY ILLINOIS
CATLIN ROAD
TELEPHONE 217-443-0770
DANVILLE, ILLINOIS 61832

September 24, 1982

Joseph Ellis, Project Evaluator
Jule Dee Scarborough, Project Director
Northern Illinois University
Department of Industry and Technology
DeKalb, IL 60115

Dear Sirs:

Received your September 10, 1982 letter and read with interest about Project WASTE. We would appreciate receiving more information about the project. We have over 600 students transported to our center each day. Travel time is between 15 minutes to one hour round trip per student.

We are very much interested in receiving more information on Project WASTE. Please forward to my attention at the above address.

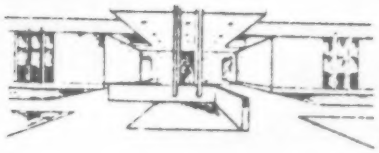
Sincerely,

Paul Wasser

Paul Wasser
DIRECTOR

/mc

Robert S. Gomsrud, Direct
Gerald Conner, Assistant Direct



WHITESIDE AREA VOCATIONAL CENTER

1608 5th Avenue, Sterling, Illinois 61081-1399

Telephone 815/626-58

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Twin City Nazarene
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October 21, 1982

Northern Illinois University
Department of Industry and Technology
DeKalb, IL 60115

ATTN: Jule Dee Scarborough and
Joseph Ellis

Dear Sir:

Please send us more information on "Project WASTE". We are an area center that has 20 schools in our cooperative, of which, approximately 15 schools are bused.

Thanking you in advance,

Sincerely,

Gerald Conner

Gerald R. Conner
Assistant Director

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Appendix F

Presentation Proposals

Northern Illinois University
DeKalb, Illinois 60115

Department of Industry and Technology
815 753 1349

MEMO

TO: Joy Jansen

FROM: Jule Dee Scarborough

RE: Proposal for presentation at the Illinois Vocational Association Conference

Project Report: Working at Time Saving in Education: An Innovative Delivery System for Vocational Education

Target Audience: Vocational program administrators, teachers, and school district transportation directors

Presenters:

Jule Dee Scarborough	Joseph R. Ellis
Department of Industry & Tech.	Dept. of Learnin Dev. & Spec. Ed.
Northern Illinois University	Northern Illinois University

This is a DAVTE/ISBE funded project. It will be completed in June, 1983. For a description of the project, see attached abstract.

Time necessary for presentation: 1 hour

Presentation format: formal presentation with a question/answer follow-up

Materials Available: Executive summary, including directions for obtaining furthur information and final report.

Sincerely,

Jule Dee Scarborough

Jule Dee Scarborough

December 13, 1982

Mr. Ted Randall
Illinois State Board of Education
100 NortheFirst Street
Springfield, Illinois 62770

Dear Mr. Randall:

Enclosed you will find a proposal for a presentation that Dr. Jule Scarborough and I would like to make in the Fall of 1983 at the Annual Session of the Illinois Association of Pupil Transportation.

The proposed presentation concerns Project WASTE, an ISRE/DAVTE funded project to provide onbus vocational education learning experiences to 11th and 12th grade students going to and returning from an area vocational center. This study is being conducted now and will be concluded in May of 1983. We believe its findings will have implications for other students who ride school buses and we believe those concerned with pupil transportation will be interested in the results of this study.

Sincerely,

Joseph R. Ellis
Professor of Education

Encl.
JRE:rlm

Appendix

PRESENTATION PROPOSAL
December 13, 1982

Presented to:	Ted Randall, ISBE
By:	Jule Scarborough and Joseph Ellis Northern Illinois University
What:	A summary report of Project WASTE, an ISBE/DAVTE funded project to provide on-bus learning experiences for 11th and 12th grade students riding to and from an area vocational center. This presentation should take about 30-40 minutes including a questions and answer session.
When:	During the Fall, 1983 Annual Session of the Illinois Association of Pupil Transportation
Where:	Springfield, Illinois (or wherever the session is held)
Who:	To be presented by Jule D. Scarborough, Project Director and Joseph R. Ellis, Project Evaluator
Expected Contribution or Potential Impact of this Project on Education:	Students who spend time riding school buses to Illinois area vocational centers and to other sites for vocational courses and activities generally experience a waste of school directed learning time. Should the outcomes of the Project warrant, those responsible for student on-bus time may be able to adopt and/or adapt the Project's model and material for delivering directed vocational education learning experiences during student on-bus time that would result in increased student educational productivity, efficiency and effectiveness. The outcomes of the study may lead to adoption/adaption of the Project's model and materials in a variety of settings and curriculum areas other than vocational education where students spend time riding school buses. Broad application of Project results to students could take place within a few years.

On the following page is an abstract of the project.

Appendix

Abstract
Proposal Presentation

Title: Summary Report of Working at Student Timesaving in Education (Project WASTE)

Principal Investigator: Jule Dee Scarborough

Institution: Northern Illinois University

Major Objectives of Project: At the conclusion of the project, it's director will present, as part of the final report, an adaptable model of a developed and field-tested instructional package for deliverying vocational education units about occupational survival skills/employability skills to students traveling on school buses to and from area vocational centers and other sites serving as part of cooperative arrangements.

Procedures of the Project: Project WASTE was designed to develop and field test during the 1982-1983 school year, a model alternate system for delivering vocational education learning experiences to students while they ride a school bus to and from area vocational centers. It adhered to the following general procedures:

1. Adapted units from existing material used for teaching occupational survival skills to a format compatable for devivery to students on a school bus while in transit to and from the Mid-Valley Area Vocational Center, Kane County, Illinois.

2. Tested the adapted units with students on school busses from one high school and particpated in the Mid-Valley AVC.

3. Evaluated the efficiency and effectiveness of the learning resulting from the on-bus implementation of the units and related instruction and materials.

4. Developed a model for on-bus instruction based on the experiences of operating Project WASTE.

5. Disseminated the project's model and results.

Results of Project: At the time this proposal is being prepared, the Project is in process, thus, the final results are unknown. However, preliminary indications indicate that the Project will be effective and efficient and achieve its objectives. The final results will be ready for dissemination in May of 1983.